Amendments to the Specification:

On page 2, please amend the five paragraphs starting on line 8 and continuing to page 3, line 3 as follows:

According to an exemplary embodiment ~~of the present invention as set forth in claim 1~~, the above object may be solved by a method of visualizing an multi-dimensional data set[[,]] ~~wherein the~~ . The method comprises the steps of performing a segmentation of a structure in the data set and performing a visualization of the data set[[,]] ~~wherein a~~ . A projection direction of the visualization is determined on the basis of the structure.

In other words, a structure in a data set may be identified by a segmentation procedure and, depending on the segmented structure, an image slice or projection of the data set is visualized[[,]] ~~wherein the~~ . The position of the projection inside the data set is related to the structure.

Advantageously, according to this exemplary embodiment ~~of the present invention~~, this may allow for an automated choice of parameters of the visualization procedure and therefore for an improved visualization.

According to another exemplary embodiment ~~of the present invention as set forth in claim 2~~, the visualization is performed on the basis of visualization parameters which comprise information about the projection direction and which are determined on the basis of at least one of the segmentation of the structure in the data set and low-level analysis of the data set. Furthermore, the visualization parameters are selected from the group ~~consisting of~~ including a relative position of the structure, a direction relative to the structure, a distance between the structure and an object of interest, a motion estimation, and a motion compensation.

Advantageously, according to this exemplary embodiment ~~of the present invention~~, image slices may be visualized in a certain direction relative to the structure and, for example, at a certain distance from the structure. Furthermore, according to this exemplary embodiment ~~of the present invention~~, the multi-dimensional data set may comprise data relevant for motion estimation or

compensation, such as, for example, electro-cardiogram (ECG) data. This additional data may be used, e.g., for a motion compensated visualization of the data set.

On page 3, please amend the three paragraphs spanning lines 4-18 as follows:

According to another exemplary embodiment ~~of the present invention as set forth in claim 3~~, the structure is one of a biopsy needle and an endoscope probe, wherein a first projection of the data set is performed in a direction of a longitudinal axis of the structure, resulting in a first image with an image surface area perpendicular to the direction of the longitudinal axis. Furthermore, a second projection of the data set is performed in a direction perpendicular to the longitudinal axis of the structure, resulting in a second image comprising the structure.

Advantageously, according to this exemplary embodiment ~~of the present invention~~, this may provide for a first image slice visualizing a viewing direction of a biopsy needle and a second image slice visualizing the biopsy needle itself and data on a plane comprising the biopsy needle. This may allow for an effective visualization of information required for performing a successful and fast biopsy or endoscopy.

~~Another~~ In another exemplary embodiment ~~of the present invention is set forth in claim 4, wherein~~ at least one of the visualization parameters is displayed during visualization of the data set.

On page 3, please amend the two paragraphs starting on line 22 and continuing to page 4, line 3 as follows:

According to another exemplary embodiment ~~of the present invention as set forth in claim 5~~, the method further comprises the step of varying a rendering method in an image resulting from the visualization of the data set[[,]] ~~wherein the~~. The variation of the rendering method causes a non-uniform quality of the image. Furthermore, according to an exemplary embodiment ~~of the present invention as set forth in claim 6~~, the variation of the rendering method comprises a variation of a

sampling rate in the image and the variation of the rendering method is performed on the basis of the visualization parameters.

Advantageously, ~~according to the exemplary embodiments of the present invention as set forth in claims 5 and 6,~~ this may allow for maximum image quality in the ~~centre~~ center of an image slice (where the biopsy needle may be pointed to), and, at the same time, for a reduced image quality at the edges of the image slice (which are not of high interest to the user). Advantageously, this may provide for a reduction of computational cost.

On page 4, please amend the paragraphs spanning lines 4-6 as follows:

According to another exemplary embodiment ~~of the present invention as set forth in claim 7~~, the segmentation is performed on the basis of one of a Hough Transform and a determination of active localizers.

On page 4, please amend the two paragraphs spanning lines 9-18 as follows:

According to another exemplary embodiment ~~of the present invention as set forth in claim 8~~, the data set is acquired by means of an ultrasound imaging system, a CT imaging system and an MR imaging system.

According to another exemplary embodiment of ~~the present invention as set forth in claim 9~~, an image processing device for visualizing a multi-dimensional data set is provided, comprising a memory for storing the data set and an image processor adapted for performing the following operation: loading the data set; performing a segmentation of a structure in the data set; and performing a visualization of the data set. The projection direction of the visualization is determined on the basis of the structure.

On page 4, please amend the two paragraphs spanning lines 20-27 as follows:

~~A further exemplary embodiment of the image processing device as set forth in claim 10.~~

~~The present invention also relates to~~ According to another exemplary embodiment, an imaging ~~systems comprising~~ system includes a memory for storing a multi-dimensional data set and an image processor adapted for performing a visualization of the data set. According to an aspect ~~of the present invention~~, the imaging system is one of an MR imaging system, a CT imaging system, and an ultrasound imaging system. ~~The imaging systems according to the present invention are set forth in claims 11 to 13.~~

On page 4, please amend the paragraph starting on line 31 and continuing to page 5, line 11 as follows:

~~The present invention also relates to~~ According to another exemplary embodiment, a computer program[[,]] ~~which~~ may, for example, be executed on a processor, such as an image processor. Such computer programs may be part of, for example, a CT scanner system, an MR scanner system or an ultrasound imaging system. ~~The computer programs, according to an exemplary embodiment of the present invention, are set forth in claim 14.~~ These computer programs may be preferably loaded into working memories of image processors or general purpose computers. The image processors are thus equipped to carry out exemplary embodiments of the methods of the present invention. The computer programs may be stored on a computer readable medium, such as a CD-ROM. The computer programs may also be presented over a network, such as the WorldWideWeb and may be downloaded into the working memory of an image processor from such networks. The computer program according to this exemplary embodiment of the present invention may be written in any suitable programming language, such as C++.

On page 5, please amend the paragraph spanning lines 12-19 as follows:

~~It may be seen as the gist of~~ According to an exemplary embodiment, ~~of the present invention that~~ an intervention (caused by a user) to an object of interest is visualized without the requirement of an interactive input by the user, which may be a physician. In fact, parameters for a visualization procedure, such as, e.g., of viewing direction, may be automatically chosen during data acquisition which may allow for an efficient tracking of the actual orientation and relative position of a structure, such as a biopsy needle, with respect to the object of interest, such as, for example, a cyst inside the abdomen or a plastoma or neoplasm inside the uterus of a patient.

On page 5, please amend the five subparagraphs that begin on line 25 and continue to page 6, line 7 as follows:

Fig. 1 shows a simplified schematic representation of an embodiment of a ~~magneto~~[[-]] magnetic resonance (MR) imaging system according to ~~the present invention~~ an exemplary embodiment.

Fig. 2 shows a schematic representation of an interventional biopsy visualized by an ultrasound imaging system according to an exemplary embodiment ~~of the present invention~~.

Fig. 3 shows a schematic representation of projections visualized according to ~~a method of the present invention~~ an exemplary embodiment.

Fig. 4 shows a flow-chart of an exemplary embodiment of a method of visualizing a multi-dimensional data set according to ~~the present invention~~ an exemplary embodiment.

Fig. 5 shows an exemplary embodiment ~~of the present invention~~ of an image processing device ~~according to the present invention,~~ for executing an exemplary embodiment of a method ~~in accordance with the present invention~~.

On page 6, please amend the paragraph spanning lines 10-18 as follows:

Fig. 1 shows an exemplary embodiment ~~of the present invention~~ of an MR imaging system ~~according to the present invention~~. With reference to this exemplary embodiment and to the embodiment depicted in Fig. 2 (ultrasound imaging system), the present invention will be described for the application in the field of medical imaging. However, it should be noted that the present invention is not limited to the application in the field of medical imaging, but may be used in other applications, such as, for example, any other form of minimal invasive procedures which may arise, for example, in the field of baggage inspection to detect hazardous material, such as explosives, in items of baggage or other industrial applications, such as material testing.

On page 6, please amend the paragraph spanning lines 19-28 as follows:

The MR scanner system comprises coils 210 which are arranged along an axis 218 and surround an examination space 217, in which a patient 215 who has to be examined or from whom a tissue probe has to be taken is positioned. Advantageously, the patient lies on a movable table or conveyor belt 216, which is disposed at the lower part of the examination space 217. The system of coils 210 surrounding the examination space 217 comprises an [[HF]]RF-coil 219, an actively shielded arrangement of gradient coils comprising an inner coil 213 and an actively shielded coil or shield 212 and a cryostat 211, in which the coils are arranged in order to be cooled down during generation of the magnetic field. The arrangement of gradient coils 213, 212 may be connected to a gradient amplifier 220.

On page 7, please amend the paragraph spanning lines 24-27 as follows:

It should be understood, that[[,]] ~~according to the present invention,~~ the imaging system 202 does not necessarily have to be an ultrasound imaging system but may be any other appropriate kind of imaging system, such as, for example, an MR imaging system or a CT imaging system.

On page 8, please amend the paragraph beginning on line 19 and continuing to page 9, line 3 as follows:

It should be noted that the concept may be extended to a thick [[slap]] slab orientation, choice of surface rendering viewpoint and an integration of active localizers. For example, the segmentation does not necessarily have to be performed by a Hough Transform, which is a computer vision algorithm that can robustly detect a wide variety of features such as lines, circles and anything else that can be readily parameterized or otherwise cast in terms of a discrete popularity algorithm. If, for example, the structure is linear in shape, but not visible to the imaging system, since, for example, some of its physical properties are similar to physical properties of the surrounding tissue (for example a reflection coefficient), it may not be advantageous to use a Hough Transform for segmentation. Instead, active localizers may be integrated in the structure (e.g. biopsy needle) and the integrated active localizers may be individually segmented by means of an alternating external electromagnetic field and an appropriate detector. The detection of active localizers is well-known and will not be described here in greater detail. After detection of integrated active localizers, the orientation and position of the structure may easily be performed.

On page 10, please amend the two paragraph spanning lines 2-14 as follows:

The visualization S4 of the data set comprises a first projection of the data set in a direction of a longitudinal axis of the biopsy needle, resulting in an image slice with an image surface area perpendicular to the longitudinal axis and a second projection in a direction perpendicular to the longitudinal axis of the biopsy needle, resulting in a second image slice comprising the biopsy needle.

In other words, particular selected image slices from the data set are visualized during the examination or operation of the patient. The image slices are selected automatically by the ultra sound imaging system without the need of input from the physician. Advantageously, the image slices represent projections in the view direction of the biopsy needle and in a direction perpendicular to the view direction of the biopsy needle. Therefore, the physician always "looks" in the direction of his biopsy needle 205 independent from its actual position relative to the ultra sound source 202 (see [[Fig2.]] Figs. 2 and 3).

On page 11, after the last paragraph ending on line 14, please add the following paragraph:

The invention has been described with reference to the preferred embodiments. Modifications and alterations may occur to others upon reading and understanding the preceding detailed description. It is intended that the invention be constructed as including all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.